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## What is claimed is:

- 1. A photonic cell comprising:
  - a base node and
- 5 a plurality of member nodes, each member node within optical reach from the base node.
  - 2. An optical network as claimed in Claim 1 wherein the base node is within optical reach from at least one of the member nodes.
  - 3. An optical network as claimed in Claim 1 wherein the base node is within optical reach of the plurality of member nodes.
  - 4. An optical network as claimed in Claim 1 wherein each of the plurality of member nodes is a base node for its own photonic cell.
  - 5. An optical network comprising;
    - a plurality of photonic cells, each cell including a base node and
- a plurality of member nodes, each member node within optical reach from the base node.

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- 6. An optical network as claimed in Claim 5 wherein each photonic cell overlaps at least one node with at least two other photonic cells.
- An optical network as claimed in Claim 6 wherein each node in an overlap
  between two photonic cells includes optical regeneration.
  - 8. An optical network as claimed in Claim 7 wherein the optical regeneration includes optical-electrical-optical conversion.
- 9. An optical network as claimed in Claim 7 wherein the optical regeneration includes wavelength conversion.